Patent Claims

1. PTC component

- with a basic body (8) comprising stacked ceramic layers (4) that are separated from one another by electrode layers (5), wherein the ceramic layers (4) contain a ceramic material that has a positive temperature coefficient in at least one part of the R/T characteristic line,

- wherein the electrode layers (5) are contacted alternately with collector electrodes (6) attached to the sides of the component,

- with a volume V and an ohmic resistance R, measured between the collector electrodes at a temperature of between 0° C and 40° C,

wherein: $V \bullet R < 600\ \Omega \bullet mm^3$

2. Component according to claim 1,

which is manufactured by sintering ceramic green sheets (1) and electrode layers (5) together in one operation.

3. Component according to one of claims 1 or 2,

wherein the electrode layers (5) contain tungsten.

4. Component according to one of claims 1 through 3,

wherein the electrode layers (5) contain tungsten carbide.

5. Component according to one of claims 1 through 4,

wherein the electrode layers contain WO.

6. Component according to one of claims 1 through 5,

wherein the electrode layers contain a tungsten compound where the tungsten has a valence less than +6.

7. Method for the manufacture of a PTC component according to claim 1 with the following steps:

a) production of a layer stack from ceramic green sheets (1) with interposed electrode layers (5);

b) binder removal and sintering of a layer stack in an atmosphere with a lowered oxygen content in relation to air.

8. Method according to claim 7,

wherein the oxygen content of the atmosphere is less than 8 vol. %.

9. Method according to one of claims 7 or 8,

wherein binder removal is performed at a temperature of < 600° C.

10. Method according to one of claims 7 through 9,

wherein sintering is performed in a temperature interval of between 1000° C and 1200° C.

11. Method according to one of claims 7 through 10,

wherein the temperature of the layer stack after binder removal is kept at a value corresponding at least to the maximum debindering temperature at least until sintering has been completed.

12. Method according to one of claims 7 through 11,

wherein binder removal is performed with an oxygen content of between 0.5And < 8 vol. %.

13. Method according to one of claims 7 through 12,

wherein sintering is performed with an oxygen content corresponding to the oxygen content present during binder removal.

14. Method according to one of claims 7 through 13,

wherein sintering is performed with an oxygen content of between 0.1 and 5 vol. %.

15. Method according to one of claims 7 through 14,

wherein the oxygen content is further decreased after binder removal.

16. Method according to one of claims 7 through 15,

wherein the oxygen content is continuously lowered after binder removal.

17. Method according to one of claims 7 through 15,

wherein after binder removal, the oxygen content is decreased with increasing temperature.

18. Method according to one of claims 7 through 17,

wherein the oxygen content is again increased after a maximum sintering temperature is exceeded.

19. Use of a component according to one of claims 1 through 6 as SMD-capable PTC resistor element.